PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING

To:
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PCT

NOTIFICATION OF TRANSMITTAL OF INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing *(day/month/year)*	12 JANUARY 2005 (12.01.2005)
Applicant's or agent's file reference PH-18060-PCT	**IMPORTANT NOTIFICATION**

International application No.	International filing date *(day/month/year)*	Priority date *(day/months/year)*
PCT/KR2003/001903	**18 SEPTEMBER 2003 (18.09.2003)**	18 SEPTEMBER 2002 (18.09.2002)

Applicant

POSTECH FOUNDATION et al

1. The applicant is hereby notified that International Preliminary Examining Authority transmits here with the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report(but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details in the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/KR
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Facsimile No. 82-42-472-7140

Authorized officer

COMMISSIONER

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Artcle 36 and Rule 70)

Applicant's or agent's file reference PH-18060-PCT	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/KR2003/001903	International filing date *(day/month/year)* **18 SEPTEMBER 2003 (18.09.2003)**	Priority date *(day/month/year)* 18 SEPTEMBER 2002 (18.09.2002)

International Patent Classification (IPC) or national classification and IPC

IPC7 C07K 7/06

Applicant

POSTECH FOUNDATION et al

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

   [X] This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

   - I [X] Basis of the report
   - II [ ] Priority
   - III [ ] Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV [ ] Lack of unity of invention
   - V [X] Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI [ ] Certain documents cited
   - VII [ ] Certain defects in the international application
   - VIII [ ] Certain observations on the international application

Date of submission of the demamd	Date of completion of this report
09 MARCH 2004 (09.03.2004)	11 JANUARY 2005 (11.01.2005)

Name and mailing address of the IPEA/KR
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International aplication No.
PCT/KR2003/001903

I. Basis of the report

1. With regard to the elements of the international application:*

☐ the international application as originally filed

☒ the description:
pages 1-48 , as originally filed
pages _____ , filed with the demand
pages _____ , filed with the letter of _____

☒ the claims:
pages _____ , as originally filed
pages _____ , as amended (together with any statment) under Article 19
pages _____ , filed with the demand
pages 49-51 , filed with the letter of 15/11/2004

☒ the drawings:
pages 1/28-28/28 , as originally filed
pages _____ , filed with the demand
pages _____ , filed with the letter of _____

☐ the sequence listing part of the description:
pages _____ , as originally filed
pages _____ , filed with the demand
pages _____ , filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application(under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination(under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide** and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained inthe international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disc losure in the international applicationas as filed has been furinshed.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:
☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box(Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed." and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.*

INTERNATIONAL PRELIMINARY EXAMINATION

International aplication No.
PCT/KR2003/001903

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-13	YES
	Claims	None	NO
Inventive step (IS)	Claims	6-13	YES
	Claims	1-5	NO
Industrial applicability (IA)	Claims	1-13	YES
	Claims	None	NO

2. Citations and explanations (Rule 70.7)

The present invention relates to an isolated peptide complex, more specifically, to an isolated peptide complex comprising phospholipase D (PLD), and a screening method for modulators thereof.

The following documents have been considered for the purpose of this report:

D1: Kim, J.H. etc., Biochemistry 41(10), 3414-3421 (200.03.)
D2: Slaaby, R. etc., Biochem J. 351(Pt3), 613-619 (2000.11.)
D3: Lee, S. etc., J. Biol. Chem. 277(8). 6542-6549 (2002.02.)

1. Novelty

D1, D2 and D3 describe PLD peptide complex, which binds specifically to aldolase, collapsin response mediator molecule-2 (CRMP-2) and phospholipase C-gamma1 (PLC-gamma1). The PLD peptide complex in the claims 1-13 is not disclosed in any of the prior art. Therefore, the subject-matter of claims 1-13 is considered to be novel under PCT Article 33(2).

2. Inventive Step

Although the present invention discloses the second peptide in the claims 1-5 different from that employed in D1, D2 and D3, it is considered to be easily invented by a person skilled in the art with knowledge of the prior art documents D1, D2 and D3, without the excercise of inventive skill. Therefore, the subject-matter of claims 1-5 is not considered to involve an inventive step under PCT Article 33(3).

3. Industrial Applicability

The subject-matter of claims 1-13 is considered to be industrially applicable under PCT Article 33(4).

What is claimed is:

1. (amended) An isolated peptide complex comprising:

a first peptide selected from the group consisting of:

(a1) phospholipase D (PLD),

(a2) a PLD variant,

(a3) a PLD fragment, and

(a4) a fusion peptide containing (a1), (a2), or (a3); and

a second peptide selected from the group consisting of

(b1) actin, glyceraldehyde-3-phosphate dehydrolase (GAPDH), Akt1, glucose transporter 4 (GLUT4), mammalian target of rapamycin (mTOR), heat shock protein 70 (hsp70), dynamin, munc 18, tubulin, n-nitric oxide synthase (nNOS), integrin beta 3, guanine nucleotide exchange factor-H1 (GEF-H1), V-ATPase, phosphoinositide-3-phosphate (PIP3), or dopamine transporter (DAT),

(b2) a variant of (b1),

(b3) a fragment of (b1), and

(b4) a fusion peptide containing (b1), (b2), or (b3).

2. (amended) The isolated peptide complex of claim 1, wherein the first peptide is PLD and the second peptide is selected from the group consisting of actin, glyceraldehyde-3-phosphate dehydrolase (GAPDH), Akt1, glucose transporter 4 (GLUT4), mammalian target of rapamycine (mTOR), heat shock protein 70 (hsp70), dynamin, munc 18, tubulin, n-nitric oxide synthase (nNOS), integrin beta 3, guanine nucleotide exchange factor – H1 (GEF-H1), V-ATPase, phosphoinositide-3-phosphate (PIP3), dopamine transporter (DAT).

3. The isolated peptide complex of claim 1, wherein the first peptide is the fusion peptide containing PLD, a PLD variant or a PLD fragment.

4. (amended) The isolated peptide complex of claim 1, wherein the second peptide is the fusion peptide containing one or more peptide selected from the group consisting of actin, glyceraldehyde-3-phosphate dehydrolase (GAPDH), Akt1, glucose transporter 4 (GLUT4), mammalian target of rapamycine (mTOR), heat shock protein 70 (hsp70), dynamin, munc 18, tubulin, n-nitric oxide synthase (nNOS), integrin beta 3, guanine nucleotide exchange factor – H1 (GEF-H1), V-ATPase, phosphoinositide-3-phosphate (PIP3), dopamine transporter (DAT), a variant thereof, and a fragment thereof.

5. The isolated peptide complex of claim 1, wherein the first peptide is linked to the second peptide by a covalent bond.

6. A screening method for modulators of the peptide complex according to any one of claims 1 - 5, which comprises:

providing the isolated peptide complex;

contacting the isolated peptide complex with a test compound; and

detecting an interaction between the test compound and the isolated peptide complex and/or an interaction change between the first peptide and the second peptide.

7. A screening method for modulators of an interaction between a first peptide selected from the group consisting of

(a1) phospholipase D (PLD),

(a2) a PLD variant,

(a3) a PLD fragment, and

(a4) a fusion peptide containing (a1), (a2), or (a3); and

a second peptide selected from the group consisting of

(b1) actin, aldolase, collapsin response mediator molecule-2 (CRMP-2), phospholipase C-γ1 (PLC-γ1), glyceraldehyde-3-phosphate dehydrolase (GAPDH), Akt1, glucose transporter 4 (GLUT4), mammalian target of rapamycin (mTOR), heat shock protein 70

(hsp70), dynamin, munc 18, tubulin, n-nitric oxide synthase (nNOS), integrin beta 3, guanine nucleotide exchange factor-H1 (GEF-H1), V-ATPase, phosphoinositide-3-phosphate (PIP3), or dopamine transporter (DAT),

(b2) a variant of (b1),

(b3) a fragment of (b1), and

(b4) a fusion peptide containing (b1), (b2), or (b3),

which comprises:

contacting the first peptide with the second peptide in presence of a test compound; and

detecting an interaction between the first peptide and the second peptide.

8. The screening method of claims 6 or 7, wherein at least one of the first and second peptides is a fusion peptide having a detectable tag.

9. The screening method claims 6 or 7, wherein the contacting step is conducted in a substantially cell free environment.

10. The screening method claims 6 or 7, wherein the interaction or interaction change between the first peptide and the second peptide is determined in a host cell.

11. The screening method claims 6 or 7, wherein the detecting comprises measuring the amount of the peptide complex formed with the first and second peptides.

12. The screening method claims 6 or 7, further comprising generating a data set defining one or more selected test compounds.

13. The screening method claim 12, wherein the data set is in a transmittable form.